



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/759,135	01/20/2004	Takefumi Yoshikawa	60188-735	6967
7590 03/03/2005			EXAMINER	
McDermott, Will & Emery 600 13th Street, N.W. Washington, DC 20005-3096			NGUYEN, MINH T	
			ART UNIT	PAPER NUMBER
			2816	

DATE MAILED: 03/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

11A

**Office Action Summary**

Application No.

10/759,135

Applicant(s)

YOSHIKAWA, TAKEFUMI

Examiner

Minh Nguyen

Art Unit

2816

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 February 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 3 and 5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 3 and 5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 10/227,758.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/15/05 has been entered.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 5,115,206, issued to Mack et al. in view of Patent No. 6,218,892, issued to Soumyanath et al.

As per claim 3, Mack discloses a driver circuit (Fig. 4), comprising:

a constant current section (resistor 26, column 3, lines 46-49, i.e., "voltage at input 44 is kept constant" or in other words, because the voltage across resistor 26 is constant, resistor 26 functions as a constant current source) for outputting a prescribed current (the current flows through resistor 26);

Art Unit: 2816

a first pad (node 22) and a second pad (node 24);

a first switching element (transistor 12) responses to a first signal (at the input node 18), connected as recited and controlled by an input signal to the gate of transistor 12 at node 18;

a second switching element (transistor 14) responses to a second signal (at the input node 20), connected as recited and controlled by an input signal to the gate of transistor 14 at node 20;

a control section (op-amp 40) for controlling the potential at the output node of the constant current section to a prescribed potential by negative feedback control (the op-amp keeps the voltage at node 44 constant, column 3, lines 46-49, the configuration of the op-amp 40 in the driver circuit is clearly a feedback control configuration, also see column 3, lines 50-51, i.e., “feedback mechanism”).

The recited limitation “so that the timing at which the first switching element is turned ON/OFF and the timing at which the second switching element is turned ON/OFF are the same” on the last three lines is met because the Mack’s control section is a feedback configuration just like the one recited in the claim.

Mack further explicitly discloses transistor pair’s loads at nodes 22 and 24 are also needed (column 2, lines 9-11).

Mack does not disclose using a first resistor and a second resistor functioned as transistor pair’s loads at nodes 22 and 24 as called for in the claim.

Soumyanath discloses a driver circuit having differential structure (Fig. 1) as recited in the claim and in column 3, lines 24-26 he further discloses transistor’s pair loads are needed and these loads can be transistors, resistors or other devices.

It would have been obvious to one skilled in the art at the time of the invention was made to select resistors as transistor pair's loads at nodes 22 and 24 of the Mack's driver circuit instead of transistors for an application which requires a wide range of linear outputs since resistors are known as linear elements by the well-known relationship  $V=RI$ .

Regarding the recited limitation that the second signal is a complementary of the first signal, Mack does not explicitly disclose this information, however, it is met because the recited limitation is merely a way to operate the Mack's driver having the same structure as the claimed structure. As held by the Court, the manner to operate an apparatus, which does not result in a different structure, does not distinguish the claimed apparatus from the prior art. Please see MPEP 2114 for further discussion regarding this matter and the listed court cases.

As per claim 5, Mack further discloses the first and second switching devices are transistors as discussed in claim 3 but he does not explicitly disclose the value of the prescribed potential at the output node is close to the intermediate value of the minimum and maximum values of the gate potential of the first or second transistor minus the threshold potential of that transistor as called for in the claim.

However, as ruled by the court, when general condition is met, it is not inventive to vary parameters to obtain an optimal condition. In this instant case, Mack teaches the structure which is the same as the claimed circuit as discussed in claim 3 (the general condition is met), varying the value of the prescribed potential to be close to the intermediate value of the minimum and maximum values of the gate potential of the first or second transistor minus the threshold potential of that transistor is seen as a routine experiment and can be easily done by a person having average skill in the art.

Art Unit: 2816

It would have been obvious for one skilled in the art at the time of the invention was made to set the value of the prescribed potential in the Mack's driver circuit to be close to the intermediate value of the minimum and maximum values of the gate potential of the first or second transistor minus the threshold potential of that transistor.

The motivation and/or suggestion for doing so would be to maximize the peak to peak voltage of the first signal can be applied to the driver circuit without clipping.

### ***Response to Arguments***

3. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Minh Nguyen whose telephone number is 571-272-1748. The examiner can normally be reached on Monday, Tuesday, Thursday, Friday 7:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Callahan can be reached on 571-272-1740. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

Application/Control Number: 10/759,135

Page 6

Art Unit: 2816

system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to be 'Minh' followed by a stylized surname.

3/2/05

Minh Nguyen  
Primary Examiner  
Art Unit 2816